ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean atmospheric pressure for February, 1893, as determined from observations taken daily at 8 a. m. and 8 p. m. (75th meridian time), is shown on Chart II by isobars.

Chart VIII exhibits the normal distribution of atmospheric pressure and prevailing wind-directions over the United States for February. The publication of the charts of this series is preliminary to the publication by the Weather Bureau of specially prepared data and charts showing meteorological and climatic features and conditions of the United States.

In February, 1893, the mean pressure was highest over eastern Tennessee and the interior of the south Atlantic states, and in an area extending from the middle Saskatchewan valley over the middle and upper Missouri valleys and the middle plateau region, where it was above 30.20. The mean pressure was lowest over the Gulf of Saint Lawrence, where it was below 29.95, and a mean reading of 29.95 was noted at Tatoosh Island, Wash.

In February there is usually a decrease of pressure over interior and southern districts, and an increase of pressure over northeast and northwest districts and the British Possessions.

A comparison of the pressure chart for February, 1893, with that of the preceding month shows a general increase of mean pressure east of the Rocky Mountains and along the middle and south Pacific coasts. From the north Pacific coast over the plateau region there was a decrease of mean pressure. The greatest increase of pressure occurred from the lower lake region to the middle Atlantic coast, where it exceeded .15. The most marked decrease was noted from the north Pacific coast over the middle plateau region, where the mean pressure was .10 lower than for January.

The mean pressure for February, 1893, was above the normal, except over the Canadian Maritime Provinces, the middle Gulf states, and Lake Superior, from the southern Rocky Mountain region to the south Pacific coast, and in northwestern Washington. The greatest departure above the normal was noted at Eureka, Cal., and Edmonton, N. W. T., where it was .10, and the mean values were more than .05 above the normal from northern California over the northeast slope of the Rocky Mountains and in areas in the central valleys, the southern lake region, and the middle and south Atlantic states. The most marked departure below the normal pressure, .10, was reported at Chatham, N. B., and the departure below the normal was more than .05 over the Canadian Maritime Provinces and on the extreme north Pacific coast.

HIGH AND LOW AREAS.

The paths of areas of high and low barometric pressure over the United States and Canada for February, 1893, are shown on Charts IV and I, respectively, and some of the prominent features of the areas are given in the table at the end of this chapter.

HIGH AREAS.

Twelve high areas appeared, the average number traced for February during the last 18 years being 8. Of the high areas traced for the current month 6 advanced from the British Northwest Territory, 3 first appeared in the Rocky Mountain region, 1 is traced from the region north of the upper lakes, 1 apparently developed over the Ohio Valley, and 1 occupied the middle Missouri valley at the opening of the month. The high areas from the British Northwest Territory and the Rocky Mountain region moved southeastward over the central valleys and thence eastward to the Atlantic coast. The average velocity of the high areas, 34 miles per hour, was about 6 miles per hour greater than the average velocity of high areas traced for February of preceding years. The highest pressure of the month was 31.24 (reduced), at Swift Current, N. W. T., the morning of the 3d; the morning report of that date showed pressure 31.04 (reduced) at Bismarck, N. Dak. The following is a description of the high areas whose tracks are plotted on Chart IV:

I.—Was a continuation of high area XI for January, 1893, and at the opening of the month occupied the Dakotas, with pressure 30.90 at Huron, S. Dak. By the evening of the 1st the high area had moved northeastward over Minnesota. On that date a fall in temperature of 30° to 40° was noted from northern Minnesota to northwestern Texas, the morning temperature was 40° to 44° below zero in North Dakota and eastern and northeastern Montana, the line of zero temperature was carried to southern Kansas and central Missouri, and a reading of 12° was reported at Abilene, Tex., in the evening. By the morning of the 2d the high area had passed north of Lake Superior, the temperature had fallen 30° to 40° over the interior of Texas, a fall of 20° to 30° occurred over the eastern lake region, at Dodge City, Kans., the temperature had fallen to 2° below zero, and the line of freezing weather reached east-central Texas. During the 2d and 3d this high area drifted eastward north of the River and Gulf of Saint Lawrence, with a slight fall in temperature over the middle Atlantic and New England states on the 2d, and a severe cold wave over Maine by the morning of the 3d, when the temperature fell to 4° below zero at Eastport, Me., a fall of 32° in 24 hours.

II.—With the eastward movement of high area I the pressure continued high and increased on the northeast slope of the Rocky Mountains, and on the 3d was above 31.00 in the Saskatchewan Valley, northern Montana, and North Dakota. At Bismarck, N. Dak., and Dubuque, Iowa, the pressure at the evening report, 31.02 and 30.96, respectively, was the highest on record. On that date a marked fall in temperature occurred from Minnesota to the north part of the east Gulf states, and the morning temperature fell to zero in northern Missouri. During the 4th this high area moved south of east over the upper lake region, and a cold wave swept over the Atlantic coast states, with a fall in temperature of 20°, or more, from the Carolinas to the south New England coast. The night of the 5th the high area passed off the New England coast.

III.—The pressure continued high on the northeast slope of the Rocky Mountains, and the evening of the 6th this high area occupied the region north of Montana, with pressure above 30.90. On that date a severe cold wave overspread districts between the Mississippi River and the Rocky Mountains, the line of zero temperature reached Hannibal, Mo., in the evening, and freezing weather was reported to Abilene, Tex. During the 7th the high area moved to the lower Missouri valley, with pressure above 30.90, the cold wave extended over the central valleys and the Lake region, and the line of freezing weather was carried south of San Antonio, Tex. On the 8th the high area moved eastward over the Ohio Valley, and the cold wave reached the Atlantic coast, with a fall in temperature of 20° to 30° from New England to the east Gulf coast. The morning of the 9th this high area passed eastward off the middle Atlantic coast.

IV.—Appeared north of Montana the evening of the 9th, passed thence to Manitoba by the evening of the 10th, thence to the northern part of the Ohio Valley by the evening of the 11th, attended on the 10th by a fall in temperature of 20° to 30° in the middle Mississippi valley, and on the 11th by a fall in temperature of 20° over the interior of the east Gulf states, and in eastern North Carolina, eastern Virginia, and Quebec. During the 12th this high area moved off the New England coast, with pressure above 30.60.

V.—Appeared over the upper Ohio valley on the 13th, following the passage of low area V northeastward along the Atlantic coast. During the 14th this high area moved southeastward over Virginia and disappeared off the North Carolina coast, its passage being attended by slight changes in temperature in the Atlantic coast states.

VI.—Appeared over Alberta the evening of the 12th, and during the 13th moved southeastward over Assiniboia with pressure above 30.60, and a fall in temperature of 30° in western South Dakota and western Nebraska. During the 14th the high area advanced to the middle Rocky Mountain region, and on the 15th disappeared by a decrease of pressure over the lower Missouri valley. On the 14th the temperature fell 20° to 30° from Texas to Minnesota, and on the 15th a temperature fall of 20° was noted from southeastern Texas to the middle Ohio valley.

VII.—Appeared over Manitoba the evening of the 15th, and the morning of the 16th was central north of Lake Superior with pressure above 30.50, and temperature 40° below zero at White River, Ont. The evening of the 16th this high area occupied the upper lake region, and the temperature had fallen 20° over northern Ontario and on the Maine coast. During the 17th the high area moved eastward over the Canadian Maritime Provinces, and the temperature fell 20° to 30° from eastern Pennsylvania to northeastern North Carolina.

VIII.—Occupied Manitoba the evening of the 19th, and advanced to Wisconsin by the morning of the 20th, with a temperature fall of 20° in areas in the Lake region and upper Mississippi valley. By the evening of the 20th the high area had moved to the upper Ohio valley, and the temperature had fallen 20° in the middle Ohio valley and on the Atlantic coast. During the 21st this high area passed off the middle Atlantic coast, with a fall in temperature of 20° in Maine.

IX.—Apparently moved southeastward from the middle plateau region, and the evening of the 21st occupied the southeast slope of the Rocky Mountains. During the 22d this high area moved rapidly eastward over the Gulf States, with a fall in temperature of 20° in the interior of Mississippi at the morning report, and a slight fall in temperature along the south Atlantic coast.

X.—Was apparently an offshoot of an area of high pressure which extended from the north Pacific coast over the middle plateau region on the 24th. The morning of the 25th this high area was central over Oklahoma. By the evening of the 26th the high area had reached the North Carolina coast, its passage being attended by a slight fall in temperature from the Ohio Valley to the middle and south Atlantic coasts.

XI.—The evening of the 26th, when high area X occupied the Carolina coast, a ridge of high pressure extended thence over the eastern lake region, and the morning of the 27th high area XI appeared north of Lake Ontario, with pressure above 30.50. By the evening of the 28th this high area had moved southeastward off the New England coast, with a slight fall in temperature in eastern New York and the interior of New England.

XII.—Apparently developed on the northeast slope of the Rocky Mountains, and the evening of the 27th occupied the middle Rocky Mountain region. By the evening of the 28th this high area had advanced to the middle Mississippi valley. On the 26th the temperature fell 10° to 20° on the northeast slope of the Rocky Mountains; on the 27th a fall in temperature of 20° to 30° was noted from northwestern Texas to western Missouri; and on the 28th a temperature fall of 10° to 20° occurred from eastern Texas to the western lake region.

LOW AREAS.

The average velocity of low areas for January and February, 37 statute miles per hour, is the greatest noted for the year. A principal track of February storms is traced from Montana eastward over the Lake region and Saint Lawrence Valley to southern Newfoundland, and less frequented tracks are traced from the middle-eastern slope of the Rocky Mountains and the west Gulf states to the Lake region, and from the south Atlantic coast to Nova Scotia. An average of about 2 low areas per month advance from the Pacific coast north of the 45th parallel and traverse the United States.

Twelve low areas appeared during February, 1893, the average number traced for the corresponding month of the last 18 years being 8. Two of the low areas advanced from the north Pacific coast, 3 from the British Northwest Territory, 2 from the southeast slope of the Rocky Mountains, 2 from the Gulf of Mexico, 2 from the Lake Superior region, and 1 from the upper Mississippi valley. The low areas from the north Pacific coast and the British Northwest Territory reached the Gulf of Saint Lawrence. One of the low areas from the southeast slope of the Rocky Mountains moved to Nova Scotia; the other disappeared north of Lake Superior. One of the low areas from the Gulf of Mexico passed northeastward over the lower Mississippi valley, and thence over the Lake region and northern New England; the other moved northeastward off the Atlantic coast. The low areas from the Lake Superior region and the upper Mississippi valley advanced eastward over the Canadian Maritime Provinces. The average velocity of the low areas was about 3 miles per hour greater than the average velocity of low areas traced for February of preceding years. The following is a description of the low areas whose tracks are plotted on Chart I:

I.—The night of the 1st–2d the pressure decreased rapidly in the Missouri Valley, and the evening report of the 2d showed the development of this low area near southern Lake Michigan. During the 2d a heavy snowstorm, with high northeast wind, prevailed over Wisconsin, and rain fell in the Ohio and middle and lower Mississippi valleys. By the morning of the 3d the storm-center had advanced to eastern Lake Ontario, and the temperature had risen 20° in the upper Ohio valley. By the evening report the center had reached the east Maine coast, with pressure below 29.90, from which point it passed rapidly eastward over Nova Scotia. During the 3d the snowstorm extended eastward over the Lake region, New York, and New England, with westerly gales of 40 to 50 miles per hour over the lower lakes and at Sault Ste. Marie, Mich., and Parry Sound, Ont., and rain or snow was quickly followed by clearing weather in the Ohio Valley.

II.—The morning of the 5th an area of low pressure occupied the middle Rocky Mountain and middle plateau regions, the barometer was low thence to the north Pacific coast, and an area of high barometer occupied the Saskatchewan Valley. By the evening report of the 5th the trough of low pressure had extended northeastward to Lake Superior and two areas of lower pressure appeared, one over Upper Michigan and the other over Colorado. By the morning of the 6th the high area in the Northwest, number III, had extended southeastward over the Missouri Valley, filling up the low area over Colorado and forcing low area II to Lower Michigan. By the evening of the 6th the center of disturbance had advanced to the middle Saint Lawrence valley, with pressure below 29.60. Heavy snow, with high northwest wind, set in over Iowa the night of the 5th and continued until the morning of the 6th. The snowstorm extended over Wisconsin and Lower Michigan during the 6th, and rain fell in the Atlantic coast states and Ohio Valley. During the 7th the storm-center passed over the Gulf of Saint Lawrence, with high southwest winds and rapidly clearing weather in the middle Atlantic and New England states.

III.—Appeared on the north Pacific coast the morning of the 8th with pressure below 29.60, and at the evening report was central near Salt Lake City, Utah. On that date heavy rain fell in the Pacific coast states and thence over the middle

plateau region, and unusually high winds prevailed over Nevada and eastern California. During the 9th this low area crossed the middle Rocky mountain region and passed thence to Wisconsin, the temperature rose 20° to 30° from Texas to the Great Lakes, and rain or snow fell generally east of the Missouri and lower Mississippi valleys. During the 10th the storm-center passed north of the Saint Lawrence River, with pressure below 29.30, the temperature rose 10° to 20° in the Atlantic coast states, rain fell generally east of the Mississippi River, the rainfall being heavy in New England and Tennessee, and westerly gales prevailed along the Atlantic coast from the Carolinas to Maine.

IV.—Occupied the north Pacific coast on the 11th, and during the 12th moved southeastward to Wyoming. On the 13th this low area divided, one part passing to South Dakota and the other to extreme southwest Kansas. On that date high winds and heavy snow were reported in the Missouri Valley, and rain fell in the West and Southwest. At Dodge City, Kans., a hailstorm moved northeast in the afternoon. By the night of the 14th the trough of low pressure which extended southward over the Western States on the 13th had contracted northward and the center of disturbance was north of Lake Huron; the rain area had extended eastward over the Ohio Valley and the Lake region. By the morning of the 15th the center had reached the northern part of the Gulf of Saint Lawrence, with pressure below 29.40.

V.—Appeared over the Gulf of Mexico on the 12th, and by the evening report of that date rain was falling in the south Atlantic and middle and east Gulf states; at 3.45 p. m. a heavy rain and hail storm visited De Land, Fla. During the 13th the storm-center moved rapidly northeastward off the middle Atlantic coast, attended by northeast gales on the New Jersey and New England coasts, heavy rain, sleet, and snow in southern New England, and heavy snow at night in northern New England. By the morning of the 14th this low area had disappeared southeast of Nova Scotia.

VI.—Was probably a subsidiary development to low area IV, and the evening of the 14th occupied the lower Rio Grande valley, with pressure below 29.90, and rain in the Gulf States. During the 15th the center of disturbance moved slowly eastward over the west Gulf and heavy rain fell in the east Gulf and south Atlantic states. During the 16th the center moved northward over the lower Mississippi valley, the rain area extended to the Ohio River and Virginia, a severe snowstorm set in over northwestern Texas, and destructive local storms were reported in Mississippi and western Tennessee. On the 17th this low area advanced to Ohio, and at the evening report VI*a* appeared on the North Carolina coast. Rain changed to snow in the Ohio Valley, and northeast gales and heavy snow prevailed over the middle Atlantic states and on the south New England coast. The morning of the 18th number VI was central near eastern Lake Ontario and VI*a* was located near the southeast New England coast, the snowstorm had extended to western Maine, and severe northeast gales continued along the New England coast; along the middle Atlantic coast the wind had shifted to westerly. By the evening of the 18th numbers VI and VI*a* had united near Cape Breton Island.

VII.—Appeared over Alberta on the 14th, and remained nearly stationary in that region until the night of the 16th. During the 17th the low area advanced to northern Lake Superior, and snow fell from Missouri to Manitoba. By the morning of the 18th this low area had united near Lake Ontario with low area VI.

VIII.—Apparently advanced southeastward over Lake Superior, and the morning of the 19th was central over northern Lake Huron. By the evening of the 19th the center of disturbance had passed to central New York, with pressure below 29.20. On that date westerly gales, with heavy snow, prevailed over Lower Michigan and the lower lake region. Destructive gales prevailed to the North Carolina coast in the evening, with thunderstorms in southern Pennsylvania and Maryland. The night of the 19th a violent westerly gale, with snow, set in over eastern Pennsylvania, New Jersey, and western New England, and thunderstorms were noted in New Jersey. By the morning of the 20th this low area had advanced to Maine, with a marked increase in energy, a reading of 28.78 being reported at Portland, and by the evening report had reached Chatham, N. B., where the pressure was 28.76. Northwest gales continued along the Atlantic coast north of Hatteras, and a heavy snowstorm, with rapidly falling temperature, prevailed over New England during the morning. The winds continued high from the northwest along the New England coast the night of the 20th.

IX.—Appeared over Manitoba the morning of the 20th, and moved slowly southward over the Red River of the North Valley by the evening report, with snow in Minnesota and the eastern Dakotas. During the 21st this low area passed southeastward over the Lake region and united with number X over the upper Ohio valley, attended by heavy snow in southeastern Lower Michigan and northern Ohio.

X.—Was central near Abilene, Tex., the morning of the 20th, and by the evening report had advanced to southwestern Arkansas, with rain from northern New Mexico to western Arkansas. During the 21st the storm-center passed to the upper Ohio valley, with pressure falling to 29.58 at Pittsburg, Pa. Rain or snow fell generally east of the Missouri and Mississippi rivers, except in New England and eastern New York; in the Ohio Valley the snowfall was heavy. Westerly gales prevailed over the Gulf States, and local storms were reported in southern Alabama, northern Louisiana, and eastern Texas. During the 22d this low area advanced to western Nova Scotia, with pressure below 29.00, the snow area contracted over the Northeastern States, the snow drifted heavily in New York, New England, and parts of Pennsylvania, and severe gales prevailed along the middle Atlantic and New England coasts.

XI.—Appeared over Alberta on the 21st, with pressure below 29.70. During the 22d the center advanced to the Dakotas, and the evening of that date a trough of low pressure extended from Texas to Manitoba. The temperature rose 10° to 20° within the trough of low pressure, and snow fell in North Dakota. During the 23d the center advanced to Lake Erie, with pressure falling below 29.40, the temperature rose 20° in Tennessee, and the snow area extended over the Lake region, New York, and Massachusetts. By the evening of the 24th the center of disturbance had moved eastward off the Massachusetts coast and thence to the Gulf of Saint Lawrence, with pressure below 29.40, heavy snow was quickly followed by clearing weather in New England, and westerly gales prevailed on the south New England and New Jersey coasts.

XII.—Apparently developed over the middle Rocky Mountain region on the 25th, and the evening of the 26th was central near the extreme northwest corner of Texas. On that date rain set in over the Gulf States, and thunderstorms were reported on the middle Gulf coast in the early afternoon. During the 27th this low area rapidly increased in energy and advanced to the upper Mississippi valley, the temperature rose 20° in the western lake region, heavy rain fell in the Mississippi Valley and the east Gulf and south Atlantic states, and a heavy snowstorm set in over Iowa, Minnesota, and northwestern Wisconsin. By the night of the 28th the storm-center had passed northward over Lake Superior, with pressure 29.10 at Marquette, Mich., in the morning, heavy snow was followed in the morning by clearing weather in Minnesota, Wisconsin, and the northern lake region, and severe southwest gales prevailed over the Great Lakes.

Tabulated statement showing principal characteristics of areas of high and low pressure.

Barometer.	First observed.			Last observed.		Duration.	Velocity per hour.	Maximum pressure change in 12 hours, maximum abnormal temperature change in 12 hours, and maximum wind velocity.									
	Date.	Lat. N.	Long. W.	Lat. N.	Long. W.			Station.	Rise.	Date.	Station.	Fall.	Date.	Station.	Direction.	Miles per hour.	Date.
High areas.		°	°	°	°	Days.	Miles.		Inch.			°					
I	1	44	98	50	86	1.0	29	Duluth, Minn	.88	1	Abilene, Tex	57	1	Chicago, Ill	ne.	40	2
II	3	52	103	44	63	2.5	34	Fort Buford, N. Dak	.66	2	Moorhead, Minn	25	3	Cleveland, Ohio	nw.	48	4
III	6	51	112	40	73	2.5	40	Halifax, N. S	.62	8	Fort Smith, Ark	50	6	Hatteras, N. C	n.	36	8
IV	10	53	105	43	70	2.5	37	Father Point, Que	.68	11	Nashville, Tenn	26	10	do	n.	24	12
V	13	40	80	35	74	1.0	21	New York, N. Y	.36	14	Atlanta, Ga	13	12	Atlanta, Ga	ne.	16	14
VI	13	54	113	39	98	2.0	31	Dodge City, Kans	.60	14	Kansas City, Mo	37	14	Fort Buford, N. Dak	nw.	30	13
VII	15	52	98	47	77	1.5	28	Qu'Appelle, N. W. T	.44	15	Rockliffe, Ont	21	16	Chicago, Ill	ne.	34	16
VIII	19	50	93	38	76	1.5	36	Buffalo, N. Y	.70	20	Cairo, Ill	22	20	do	ne.	34	20
IX	21	35	102	34	85	1.0	50	Nantucket, Mass	.66	23	San Antonio, Tex	13	22	New Orleans, La	n.	26	22
X	25	37	98	35	75	1.5	39	Norfolk, Va	.44	26	Abilene, Tex	15	25	Hatteras, N. C	n.	20	26
XI	27	48	78	43	72	1.0	21	Chatham, N. B	.38	27	Albany, N. Y	17	28	Portland, Me	n.	26	27
XII	27	41	104	37	89	1.0	42	Hannibal, Mo	.60	28	Kansas City, Mo	37	27	Galveston, Tex	ne.	26	28
Mean						1.6	34		.58			28				30	
Low areas.									Fall.			Rise.					
I	2	42	88	45	67	1.0	46	Huron, S. Dak	.54	2	Saint Louis, Mo	22	2	Woods Holl, Mass	nw.	51	3
II	5	47	88	47	65	1.5	36	Portland, Me	.66	6	Chatham, N. B	35	6	Erie, Pa	se.	46	6
III	8	41	113	50	69	2.0	50	do	.74	10	Yankton, S. Dak	35	8	Keeler, Cal*	sw.	61	8
IV	11	48	125	50	65	3.5	42	Rockliffe, Ont	.66	14	Father Point, Que	26	15	Amarillo, Tex	s.	56	13
V	12	29	86	40	70	1.0	52	Block Island, R. I	.48	13	Jacksonville, Fla	10	13	Block Island, R. I	ne.	65	13
VI	14	27	98	45	60	4.0	27	do	.62	18	Wilmington, N. C	22	15	Chicago, Ill	e.	54	17
VII	16	54	114	44	77	1.5	50	Port Arthur, Ont	.48	17	Parry Sound, Ont	24	17	Bismarck, N. Dak	nw.	34	17
VIII	19	46	84	48	66	1.5	31	Chatham, N. B	.66	20	Minnedosa, Man	20	18	Block Island, R. I	nw.	69	20
IX	20	52	100	40	81	1.5	36	Duluth, Minn	.36	20	Qu'Appelle, N. W. T	21	20	Swift Current, N. W. T	nw.	42	20
X	20	33	100	44	66	2.5	34	Block Island, R. I	.98	22	Pittsburg, Pa	20	21	Woods Holl, Mass	nw.	62	22
XI	21	53	113	47	61	3.0	41	Erie, Pa	.52	23	Chattanooga, Tenn	24	23	Cleveland, Ohio†	nw.	60	23
XII	26	36	103	51	87	2.0	30	White River, Ont	.70	28	Parry Sound, Ont	24	27	Chicago, Ill	sw.	60	28
Mean						2.1	40		.62			24				55	

*82 miles sw., Pikes Peak, Colo., 9th.

†92 miles w., Pikes Peak, Colo., 22d.

NORTH ATLANTIC STORMS FOR FEBRUARY, 1893.

[*Pressure in inches and millimeters; wind-force by Beaufort scale.*]

The paths of storms that appeared over the west part of the north Atlantic Ocean during February, 1893, are shown on Chart I. These paths have been determined from reports of observations by shipmasters received through the co-operation of the Hydrographic Office, Navy Department, and the "New York Herald Weather Service."

Over the north Atlantic Ocean the February normal pressure is highest in a small area southwest of the Azores, where it is above 30.20 (767), and the normal values are above 30.10 (764) in a belt extending from the eastern part of the ocean between the 22d and 40th parallels to the coast of the United States. The February normal pressure is lowest in an elongated area extending from southeastern Greenland over Iceland and Spitzbergen, where it is below 29.50 (749).

In February there is usually a decrease of pressure over the north Atlantic Ocean, except near Newfoundland, and in an area south of the Azores. The most marked decrease occurs in an area extending from the British Isles to the 40th meridian, where it varies from .05 to .10 inch, and a decrease of more than .05 inch occurs in an area south of the Banks of Newfoundland. In the area of high pressure south and southwest of the Azores the increase of pressure is less than .05 inch.

The principal track of February storms over the north Atlantic Ocean is traced from south of Newfoundland north of east to the 40th meridian, where the track divides, one branch being traced northeastward toward Iceland and the other east-northeast to the region north of the British Isles. An average of about 2 storms per month traverse the ocean from the American continent to Europe in February, and the average velocity of ocean storms for the month, about 23 statute miles per hour, is the greatest noted for the year.

In February, 1893, no less than 7 storms traversed the ocean from the American continent to European waters. From the 1st to the 6th, 16th to 19th, and 26th to 28th storms of exceptional severity prevailed over mid-ocean, and on the 14th, 19th, and 21st the pressure fell to or below 29.00 (736) near the British Isles.

From the 1st to the 6th the pressure continued low from the Banks of Newfoundland over mid-ocean, and on the 4th and 5th the barometer fell below 29.00 (736) and southwest to northwest gales of hurricane force were reported between the 20th and 40th meridians. During the 7th and 8th the storm apparently advanced northeastward and disappeared in the direction of the Norwegian coast. On the 7th low area II passed eastward over the Gulf of Saint Lawrence and Newfoundland, and the morning of the 8th was central northeast of the Grand Banks. Advancing eastward this storm passed over the British Isles during the 11th.

On the 11th low area III was central north of Newfoundland, from which region the center moved to mid-ocean by the 12th, and on the 13th was located northwest of Ireland. By the 14th this storm showed a marked increase in energy, the barometer fell below 29.00 (736), and west to northwest gales of force 7 to 11 were encountered east of the 40th meridian. Remaining nearly stationary during the 14th and 15th the storm apparently moved eastward over or north of the British Isles during the 16th.

During the 13th low area V moved northeastward off the south and middle Atlantic coasts, and on the 14th was central south of Nova Scotia. On the 15th and 16th the storm moved slowly eastward, with pressure falling to about 29.20 (742) east of the Grand Banks on the latter-named date, and during the 17th and 18th occupied mid-ocean, with pressure falling to about 29.00 (736) and westerly gales of force 8 to 11 between the 30th and 50th meridians. On the 19th the storm was central west of Ireland, with pressure below 29.00 (736) and southwest gales of force 9 to 11 east of the 20th meridian. By the 20th the storm had apparently reached the North Sea.

The night of the 19–20th low area VI–VII passed eastward